Life Cycle Tool for Alternative Assessment

Want to be comprehensive and objective as possible when evaluating alternatives

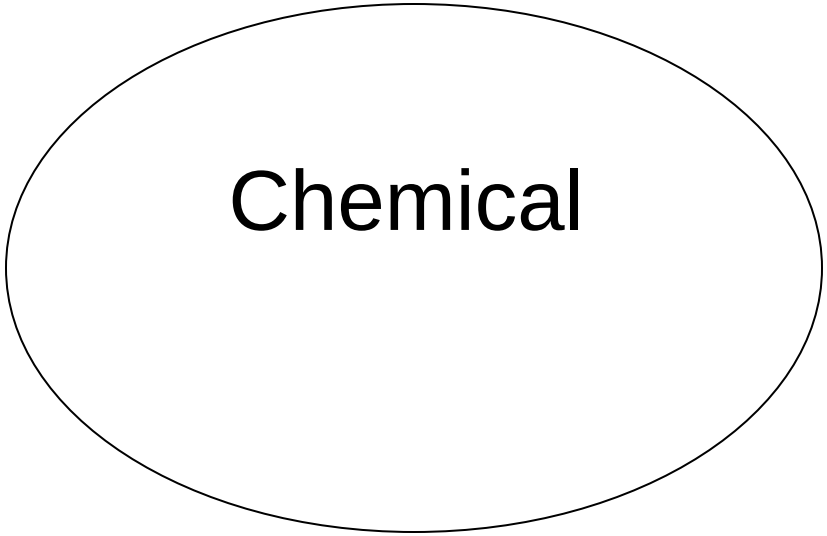
Use a materials life cycle approach

Alternatives Assessment

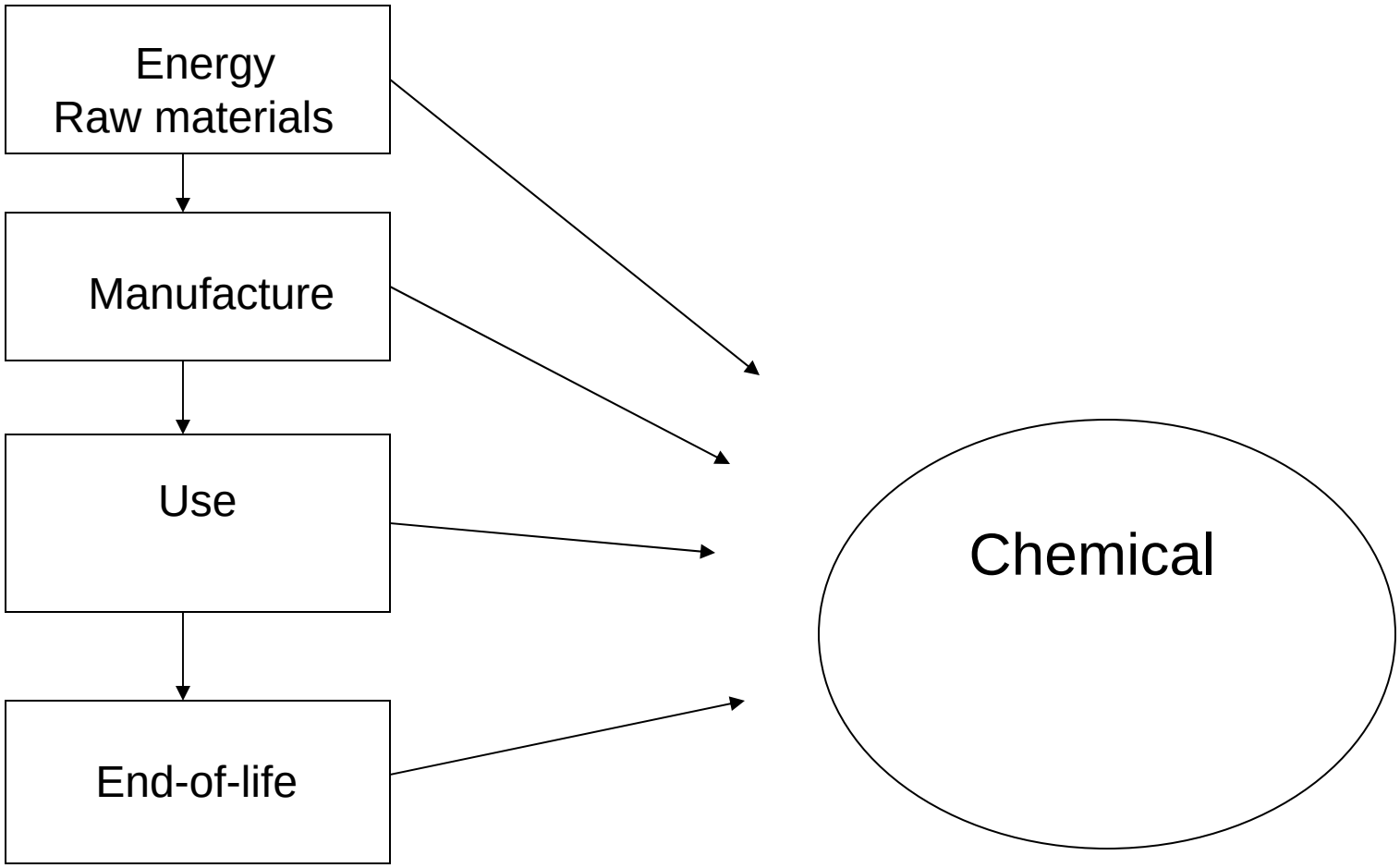
considered in terms of:

- *Process chains* (extraction, smelting, transportation, conservation, reuse, recycling, disposal, etc.)
- *Characteristics of the materials themselves* (degree of impacts, recyclability, substitutability, etc.)

Underlying goal will need to be met in an efficient, effective, and acceptable manner.


Chemical

Product life-cycle



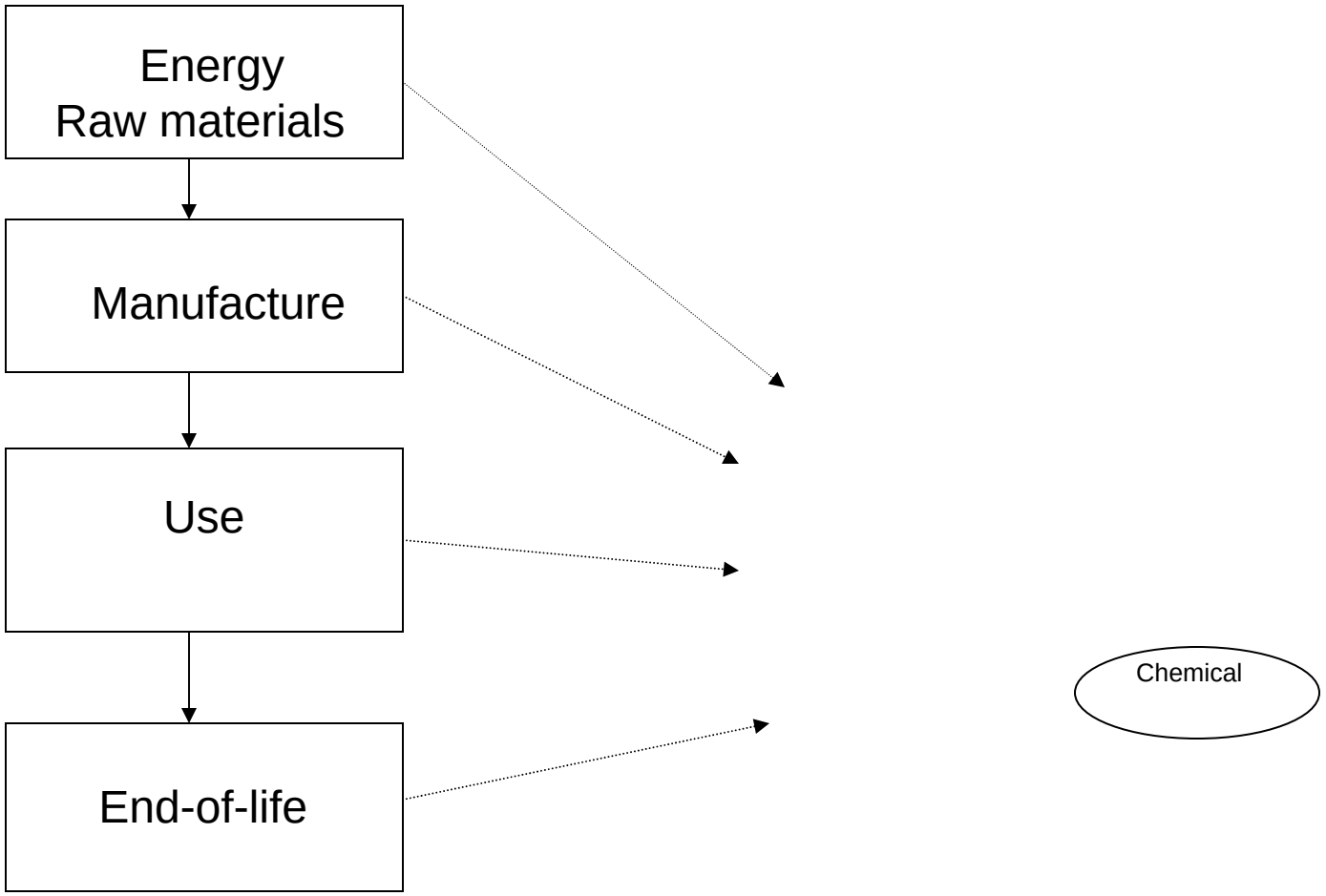
Informed Substitution

- reflects the principle of reviewing and managing holistically.
- is the considered transition from a chemical of particular concern to safer chemicals or nonchemical alternatives
- can result in cleaner production and the development or use of non-chemical technologies,
- supports detoxification
- emphasizes informed and holistic thinking to minimize the likelihood of unintended consequences or choose a course of action based on the best information (concerning the environment and human health) that is available.

alternatives

- Chemical switch out
- Re-design (eliminate or mitigate)
- End-of-life management
- …..

Product life-cycle



alternatives

Changes: some apparent some not

Life-cycle thinking

- Sustainable materials management must take into consideration the whole life cycle of materials from extraction of resources, through the production of goods, through packaging and transportation, use and end-of-product/new product life.

- Designers are guided to use life-cycle thinking in all design activities. Life-cycle thinking ensures that impacts are considered at each stage of the life-cycle and to understand the tradeoffs that occur when a change is made at one life-cycle stage, causing impact shifts throughout the chain.

- Life-cycle thinking seeks to ensure that impacts are not simply shifted from one life-cycle stage to another and that “green” products do indeed have benefits across their full lifecycles.

Point is

To avoid regrettable substitutions or alternative designs,

Process to compare alternatives considering:

- aspects of time, geographic, and media shifting, resource and energy use
- raw material changes
- product life time changes
- end-of-life changes
- significant impacts or increase in resources or energy

Breakout

Start with a process called for in the statute and outlined in the wiki; a life-cycle framework

Goal is to:

- craft explicit regulatory language
- refine the process or develop another
- define steps adequately
- identify gaps and next steps
- identify other of elements to consider

What to consider

how life cycle principles can actually be applied based on the need for efficiency, effectiveness, and acceptability

- How should it be done (process)
  - Comprehensive
  - Achievable
  - Informative
  - Transparent